

**AWARENESS AMONG ADULT PATIENTS ATTENDING ENT OUTPATIENT DEPARTMENT ABOUT XYLOCAINE TEST DOSE TO MINOR SURGICAL PROCEDURE**Mahesh Bhat<sup>1</sup>, Vinay V. Rao<sup>2</sup>, Anita Aramani<sup>3</sup>, Rahul Shivaraj<sup>4</sup>, Preethi Shetti<sup>5</sup>**HOW TO CITE THIS ARTICLE:**

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**ABSTRACT: NEED FOR STUDY:** Xylocaine is a commonly used local anesthetic for various procedures. Although the hypersensitivity to xylocaine is very infrequent, the widespread and frequent use of this drug warrants use of test dose prior to the procedure. In our study we will try to assess the awareness of hypersensitivity to xylocaine amongst the patients. **OBJECTIVE:** To assess awareness of xylocaine hypersensitivity amongst patient undergoing procedures under local anesthesia. **MATERIAL AND METHODS:** 100 consecutive patients who underwent procedure under local anesthesia were presented with preformed questionnaire. And their awareness about test dose for xylocaine was assessed. **RESULT:** Out of 100, although 84 patients were aware of local anesthetic agent being used prior to the procedures they were undergoing, 54 had a rough idea that this drug caused allergic reactions, but only 7 patients were aware that a test dose was required. **CONCLUSION:** Although rare, a prior knowledge of allergic reactions caused by the local anaesthetic agents (xylocaine being the drug under study) amongst the patients might add caution to its use, as well as increase the practice of administering test dosage prior to a procedure, and hence avoiding the consequences, detectable on a test dose.

**KEYWORDS:** Local Anesthetic (LAs), Xylocaine, Test dose, adverse reaction.

**INTRODUCTION:** Since the discovery of the anaesthetic effect of cocaine in 1884, local anaesthetics (LAs) have been widely used. It has been estimated that 6 million people are injected with LAs each day around the world. In spite of their widespread use, true hypersensitivity appears to be infrequent.<sup>1</sup>

**MATERIALS AND METHODS:** This prospective study comprised of 100 patients aged above 16 years, who underwent minor surgical procedure done under local anesthesia in the outpatient Department of Otorhinolaryngology at Father Muller Medical College, Mangalore, India. Informed consent was obtained from the patients who were then given a preformed questionnaire (Table 1) prior to the procedure and evaluated for awareness of knowledge of local anaesthetic test dose and its complications. Data was collected and compiled as per procedure and represented in the forms of frequency distribution.

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Sl. No	Questions	Yes	No
1	Do you know that Xylocaine is used as a local anesthetic drug prior to a procedure?		
2	Are you aware of the allergic reactions/hypersensitivity to xylocaine?		
3	Do you think allergic reactions/hypersensitivity to xylocaine can be detected by giving a prior test dose?		
4	Do you think that test dose of xylocaine is required prior to any procedures done under local anesthesia?		

**Table 1: Questionnaire that was presented to patients**

**RESULTS:** A total of 100 patients presented to our department for various procedures as mentioned, and were presented with a questionnaire prior to the surgical procedure. (Table 2)

Procedures	Number of patients
Ear lobe repair	20
Suturing of wound	16
Ear piercing	12
Nose piercing	12
Excision biopsy	18
Seroma incision and drainage	16
Keloid excision	1
Granuloma excision	5
<b>Total</b>	<b>100</b>

**Table 2: Frequency Distribution of procedures underwent**

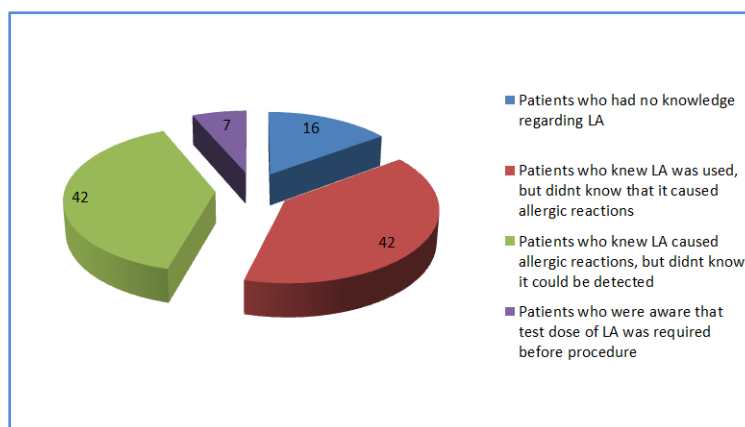
Out of 100, 61 patients were female, and 39 patients were male. 16 patients had no knowledge about the local anesthetic. Out of 84 patients who knew that a local anesthetic is used prior to a procedure, 42 didn't know that local anesthetic can cause allergic reactions/hypersensitivity. Only 42 patients knew that the local anesthetic can cause allergic reactions, but 35 patients were not aware that this could be detected by a test dose. Only 7 patients were aware of the test dose of xylocaine. (Table 3)

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Question	Total responses as YES	Total responses as NO
Do you know that Xylocaine is used as a local anesthetic drug prior to a procedure?	84	16
Are you aware of the allergic reactions/hypersensitivity to xylocaine?	54	58
Do you think allergic reactions/hypersensitivity to xylocaine can be detected by giving a prior test dose?	7	93
Do you think that test dose of xylocaine is required prior to any procedures done under local anesthesia?	7	93

**Table 3: Tabulated data showing responses by patients to the mentioned questions**

Although 84 patients were aware of the local anesthetic agent being used prior to the procedures they were undergoing, 54 had a rough idea that this drug caused allergic reactions, but only 7 patients were aware that a test dose was required. (Figure 1)



**Fig. 1: Frequency distribution piechart showing the level of awareness amongst patients about xylocaine test dose**

**DISCUSSION:** Since the discovery of anesthetic effects of cocaine in 1884 by Carl Koller, and the investigation of its adverse effects by Sigmund Freud, the search for less toxic and less addictive substitute led to development of amide and ester local anesthetics. These compounds are structurally related to cocaine, and are of two classes, amino amides and amino esters.<sup>2,3</sup> LAs reversibly interrupt impulse conduction along peripheral nerve axons.

This effect is achieved by blockade of sodium channels. LA can be used topically or injected (subcutaneously, in the gum or around a nerve plexus or spinal cord for block anaesthesia, and epidural). Addition of epinephrine to LA delays its absorption by decreasing local blood flow and prolongs the duration of anaesthetic action. Associated vasoconstriction also decreases the peak plasma concentration and therefore the risk of generalised toxic side effect.

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Adverse reactions to xylocaine are uncommon. Adverse reactions after local anesthesia injections are frequently attributed to toxic events, psychogenic, idiosyncratic or allergy (type I or type IV). Most reactions are a type I immediate hypersensitivity. There are few published cases of type IV delayed hypersensitivity Ester-LAs are metabolised by pseudo cholinesterase to p-aminobenzoic acid (PABA). Amide-LAs are metabolised in the liver.<sup>4</sup> Globally the tolerance of LAs is good, with low incidence of adverse reactions.

Two types of hypersensitivity are described with LAs – the relatively more common contact delayed hypersensitivity, mainly related to ester-LAs, and the less common immediate hypersensitivity associated with ester-LAs and exceptionally with amide-LAs. However, there is some doubt as to the reality of true allergic, IgE-mediated anaphylaxis with amide-LAs.<sup>5</sup> Tsabouri et al<sup>6</sup> found no IgE-mediated reactions in 157 patients referred with LA-associated adverse drug reactions. Similarly Gall et al<sup>7</sup> tested 197 patients and found only 2 immediate-type reactions, which were also considered not to be IgE related.

Sensitisation to topical ester-LA resulting in contact allergy is common. Its main derivative, PABA, is a common and potent sensitiser.<sup>8</sup> Type IV hypersensitivity (Gell and Coombs classification), e.g. contact dermatitis following exposure to LA, should be investigated by patch testing. However delayed inflammatory reaction may in rare cases develop following injection of LAs, eliciting localised delayed oedema at the site of the injection.<sup>9,10</sup> Contact dermatitis usually appears within 24 to 72 hours; it may, however, be clinically detectable as soon as 2 hours post exposure to LA.<sup>11</sup>

Early symptoms and signs observed in our study after test dose were sensation of warmth, itching especially in the axilla and groin, and a feeling of anxiety and panic. Two cases progressed into an erythematous or urticarial rash, edema of the face and neck, bronchospasm and laryngeal edema. Systemic corticosteroids and antihistamine may also be used to treat severe systemic reactions but should never be given prior to or as a substitute for epinephrine in the treatment of anaphylaxis.<sup>12,13</sup>

The routine use of an anesthetic test dose appears to be safe and capable of detecting potentially dangerous complications undetected by conventional techniques. Positive responses occur in a small portion of those who receive the test dose injection. To minimize risk of potentially life-threatening complications associated with xylocaine toxicity, the safety step of test doses should be made mandatory in local anesthetic practice.

Even though local anesthetic xylocaine has many side effects it is the most commonly used drug. In daily practice the number of cases we come across is very few. But there is an obvious need to screen their predisposition towards allergic reaction through a test dose. Unfortunately our patients are unaware of the drugs they are taking and their side effects and their screening methods. Our study proves the same. Hence efforts on the part of treating doctor about creating awareness among patients is must.

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### AUTHORS:

1. Mahesh Bhat
2. Vinay V. Rao
3. Anita Aramani
4. Rahul Shivaraj
5. Preethi Shetti

### PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of ENT, Father Muller Medical College.
2. Assistant Professor, Department of ENT, Father Muller Medical College.
3. Senior Resident, Department of ENT, Father Muller Medical College.
4. Post Graduate, Department of ENT, Father Muller Medical College.
5. Post Graduate, Department of ENT, Father Muller Medical College.

### NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Rahul Shivaraj,  
Post Graduate,  
Department of ENT,  
Father Muller Medical College,  
Kankanady,  
Mangalore-575002.  
Email: rahulshivaraj@gmail.com

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